

CLAIMS

1. A mobile communication system comprising:

a base station; and

5 a mobile station which performs data transmission/reception with said base station using a wireless link set between them,

wherein said base station comprises:

10 means for transmitting a downlink individual channel to the mobile station;

means for starting synchronization establishment operation of an uplink individual channel in response to transmission of the uplink individual channel from the mobile station to the base station; and

15 means for performing transmission/reception of data to be transmitted in the case where the synchronization between the uplink individual channel and downlink individual channel has been established at a third timing of a specified cycle previously set and the data to be transmitted between the base station and
20 the mobile station exists,

wherein said mobile station comprises:

means for starting synchronization establishment operation of the downlink individual channel at a second timing of a specified cycle previously set;

25 means for starting transmission of the uplink individual channel to the base station at the time when the synchronization of the downlink has been established;

means for performing transmission/reception of data to be transmitted in the case where the synchronization between
30 the uplink individual channel and downlink individual channel has been established at the third timing of a specified cycle previously set and the data to be transmitted between the base station and the mobile station exists; and

means for suspending at least one of the transmission of the uplink individual channel or reception of the downlink individual channel in the case where the synchronization between the uplink individual channel and downlink individual channel has been established at the third timing and the data to be transmitted between the base station and the mobile station does not exist, and

wherein when the synchronization of the uplink individual channel or the downlink individual channel has not been established at the third timing, the synchronization establishment operation is continued.

2. The mobile communication system according to claim 1, wherein

said base station and mobile station further comprise means for continuing the synchronization establishment operation in the case where the synchronization of the uplink individual channel or downlink individual channel has not been established at the third timing.

3. The mobile communication system according to claim 1, wherein

said mobile station further comprises means for continuing the synchronization establishment operation by continuing the transmission of the uplink individual channel or reception of the downlink individual channel in the case where the synchronization of the uplink individual channel or downlink individual channel has not been established at the third timing.

4. The mobile communication system according to claim 1, wherein

said base station further comprises means for continuing the synchronization establishment operation by continuing the

transmission of the downlink individual channel or reception of the uplink individual channel in the case where the synchronization of the uplink individual channel or downlink individual channel has not been established at the third timing.

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5. A mobile communication system comprising:

a base station; and

a mobile station which performs data

transmission/reception with the base station using a wireless
10 link set between them,

wherein said base station comprises:

means for transmitting a downlink individual channel
to the mobile station;

means for starting synchronization establishment
15 operation of an uplink individual channel to be transmitted from
the mobile station to base station at a first timing of a specified
cycle previously set; and

means for performing transmission/reception of data
to be transmitted in the case where the synchronization between
20 the uplink individual channel and downlink individual channel has
been established at a third timing of a specified cycle previously
set and the data to be transmitted between the base station and
the mobile station exists,

wherein said mobile station comprises:

25 means for transmitting the uplink individual channel
to the base station;

means for starting synchronization establishment
operation of the downlink individual channel at a second timing
of a specified cycle previously set;

30 means for performing transmission/reception of data
to be transmitted in the case where the synchronization between
the uplink individual channel and downlink individual channel has
been established at a third timing of a specified cycle previously

set and the data to be transmitted between the base station and mobile station exists; and

means for suspending at least one of the transmission of the uplink individual channel or reception of the downlink individual channel in the case where the synchronization between the uplink individual channel and downlink individual channel has been established at the third timing and the data to be transmitted between the base station and the mobile station does not exist, and

wherein when the synchronization of the uplink individual channel or the downlink individual channel has not been established at the third timing, the synchronization establishment operation is continued.

6. The mobile communication system according to claim 5, wherein

said base station and the mobile station further comprises means for continuing the synchronization establishment operation in the case where the synchronization of the uplink individual channel or downlink individual channel has not been established at the third timing.

7. The mobile communication system according to claim 5, wherein

said mobile station further comprises means for continuing the synchronization establishment operation by continuing the transmission of the uplink individual channel or reception of the downlink individual channel in the case where the synchronization of the uplink individual channel or downlink individual channel has not been established at the third timing.

8. The mobile communication system according to claim 5, wherein

said base station further comprises means for continuing the synchronization establishment operation by continuing the transmission of the downlink individual channel or reception of the uplink individual channel in the case where the
5 synchronization of the uplink individual channel or downlink individual channel has not been established at the third timing.

9. The mobile communication system according to any one of claims 1 to 8, wherein

10 said base station is configured to transmit state update information indicating whether the mobile station can perform data transmission/reception in the case where the synchronization of a wireless link has been established at the third timing, and

15 said mobile station is configured to be set to active state in which the data transmission/reception can be performed or suspend state in which the data transmission/reception cannot be performed based on the transmission/reception state update information.

20 10. The mobile communication system according to any one of claims 1 to 9, wherein

said base station is configured to transmit state update information indicating active state to the mobile station in the case where the synchronization of a wireless link has not been
25 established at the third timing.

11. The mobile communication system according to any one of claims 5 to 10, wherein

30 said mobile station is configured to perform notification of synchronization establishment completion information in response to completion of the synchronization establishment of the downlink individual channel in the case where the synchronization of a wireless link has not been established at

the third timing and reception of the downlink individual channel is continued.

12. The mobile communication system according to any one
5 of claims 1 to 11, wherein

said base station is configured to notify the mobile station of synchronization unestablishment information in the case where the synchronization of a wireless link has not been established at the third timing.

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13. A base station that performs data transmission/reception with one or more mobile stations using a wireless link set between them, comprising:

15 means for transmitting a downlink individual channel to the mobile station;

means for starting synchronization establishment operation of an uplink individual channel in response to transmission of the uplink individual channel from the mobile station to the own station;

20 means for performing transmission/reception of data to be transmitted in the case where the synchronization between the uplink individual channel and downlink individual channel has been established at a first timing of a specified cycle previously set and the data to be exchanged with the mobile station exists;

25 means for suspending data transmission/reception for the mobile station in the case where the synchronization between the uplink individual channel and downlink individual channel has been established at the first timing and the data to be exchanged with the mobile station does not exist; and

30 means for continuing the synchronization establishment operation by continuing the transmission of the downlink individual channel or reception of the uplink individual channel in the case where the synchronization of the uplink individual

channel or downlink individual channel has not been established at the first timing.

14. The base station according to claim 13, wherein
5 said base station is configured to transmit state update information indicating whether the mobile station can perform data transmission/reception in the case where the synchronization of a wireless link has been established at the first timing.

10 15. The base station according to claim 13 or 14, wherein said base station is configured to transmit state update information indicating active state to the mobile station in the case where the synchronization of a wireless link has not been established at the first timing.

15 16. The base station according to any one of claims 13 to 15, wherein
said base station is configured to notify the mobile station of synchronization unestablishment information in the case where
20 the synchronization of a wireless link has not been established at the first timing.

17. A mobile station for performing data
transmission/reception with a base station using a wireless link
25 set between them, comprising:

means for starting synchronization establishment operation of a downlink individual channel transmitted from the base station at a first timing of a specified cycle previously set;

means for starting transmission of an uplink individual
30 channel to the base station at the time when the synchronization of the downlink has been established;

means for performing transmission/reception of data to be transmitted in the case where the synchronization between the

uplink individual channel and downlink individual channel has been established at a second timing of a specified cycle previously set and the data to be exchanged the base station exists;

5 means for suspending at least one of the transmission of the uplink individual channel or reception of the downlink individual channel in the case where the synchronization between the uplink individual channel and downlink individual channel has been established at the second timing of a specified cycle
10 previously set and the data to be exchanged with the base station does not exist; and

 means for continuing the synchronization establishment operation by continuing the transmission of the uplink individual channel or reception of the downlink individual channel in the
15 case where the synchronization of the uplink individual channel or downlink individual channel has not been established at the second timing.

18. A mobile station for performing data
20 transmission/reception with a base station using a wireless link set between them, comprising:

 means for transmitting an uplink individual channel to the base station;

 means for starting synchronization establishment operation
25 of a downlink individual channel transmitted from the base station at a first timing of a specified cycle previously set;

 means for performing transmission/reception of data to be transmitted in the case where the synchronization between the uplink individual channel and downlink individual channel has
30 been established at a second timing of a specified cycle previously set and the data to be exchanged with the base station exists;

 means for suspending at least one of the transmission of

the uplink individual channel or reception of the downlink individual channel in the case where the synchronization between the uplink individual channel and downlink individual channel has been established at the second timing and the data to be exchanged
5 with the base station does not exist; and

means for continuing the synchronization establishment operation by continuing the transmission of the uplink individual channel or reception of the downlink individual channel in the case where the synchronization of the uplink individual channel
10 or downlink individual channel has not been established at the second timing.

19. The mobile station according to claim 17 or 18, wherein said mobile station is configured to be set to active state
15 in which the data transmission/reception can be performed or suspend state in which the data transmission/reception cannot be performed based on transmission/reception state update information that the base station transmits in the case where the synchronization of a wireless link has been established at the
20 second timing.

20. The mobile station according to any one of claims 17 to 19, wherein said mobile station is configured to perform notification
25 of synchronization establishment completion information in response to completion of the synchronization establishment of the downlink individual channel in the case where the synchronization of a wireless line has not been established at the second timing and reception of the downlink individual channel
30 is continued.

21. A wireless communication method for use in a mobile communication system including a base station and a mobile station

which performs data transmission/reception with the base station using a wireless link set between them, said method comprising:

a step in which the base station transmits a downlink individual channel to the mobile station;

5 a step in which the base station starts synchronization establishment operation of an uplink individual channel in response to transmission of the uplink individual channel from the mobile station to the base station;

10 a step in which the mobile station starts synchronization establishment operation of the downlink individual channel at a second timing of a specified cycle previously set;

a step in which the mobile station starts transmission of the uplink individual channel to the base station at the time when the synchronization of the downlink has been established;

15 a step in which the base station and the mobile station perform transmission/reception of data to be transmitted in the case where the synchronization between the uplink individual channel and downlink individual channel has been established at the third timing of a specified cycle previously set and the data
20 to be transmitted between the base station and mobile station exists;

a step in which the mobile station suspends at least one of the transmission of the uplink individual channel or reception of the downlink individual channel in the case where the
25 synchronization between the uplink individual channel and downlink individual channel has been established at the third timing and the data to be transmitted between the base station and mobile station does not exist; and

30 a step in which when the synchronization of the uplink individual channel or the downlink individual channel has not been established at the third timing, the synchronization establishment operation is continued.

22. The wireless communication method according to claim 21, further comprising

5 a step in which the base station and the mobile station continue the synchronization establishment operation in the case where the synchronization of the uplink individual channel or downlink individual channel has not been established at the third timing.

10 23. The wireless communication method according to claim 21, further comprising

15 a step in which the mobile station continues the synchronization establishment operation by continuing the transmission of the uplink individual channel or reception of the downlink individual channel in the case where the synchronization of the uplink individual channel or downlink individual channel has not been established at the third timing.

24. The wireless communication method according to claim 21, further comprising

20 a step in which the base station continues the synchronization establishment operation by continuing the transmission of the downlink individual channel or reception of the uplink individual channel in the case where the synchronization of the uplink individual channel or downlink individual channel has not been established at the third timing.

25 25. A wireless communication method for use in a mobile communication system including a base station and a mobile station which performs data transmission/reception with the base station using a wireless link set between them, comprising:

a step in which the base station transmits a downlink individual channel to the mobile station;

a step in which the base station starts synchronization

establishment operation of an uplink individual channel transmitted from the mobile station to the base station at a first timing of a specified cycle previously set;

5 a step in which the mobile station transmits of the uplink individual channel to the base station;

a step in which the mobile station starts synchronization establishment operation of the downlink individual channel at a second timing of a specified cycle previously set;

10 a step in which the base station and the mobile station perform transmission/reception of data to be transmitted in the case where the synchronization between the uplink individual channel and downlink individual channel has been established at the third timing of a specified cycle previously set and the data to be transmitted between the base station and the mobile station
15 exists;

a step in which the mobile station suspends at least one of the transmission of the uplink individual channel or reception of the downlink individual channel in the case where the synchronization between the uplink individual channel and
20 downlink individual channel has been established at the third timing and the data to be transmitted between the base station and the mobile station does not exist; and

a step in which when the synchronization of the uplink individual channel or the downlink individual channel has not been
25 established at the third timing, the synchronization establishment operation is continued.

26. The wireless communication method according to claim 25, further comprising

30 a step in which the base station and the mobile station continue the synchronization establishment operation in the case where the synchronization of the uplink individual channel or downlink individual channel has not been established at the third

timing.

27. The wireless communication method according to claim 25, further comprising

5 a step in which the mobile station continues the synchronization establishment operation by continuing the transmission of the uplink individual channel or reception of the downlink individual channel in the case where the synchronization of the uplink individual channel or downlink individual channel
10 has not been established at the third timing.

28. The wireless communication method according to claim 25, further comprising

a step in which the base station continues the
15 synchronization establishment operation by continuing the transmission of the downlink individual channel or reception of the uplink individual channel in the case where the synchronization of the uplink individual channel or downlink individual channel has not been established at the third timing.

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29. The wireless communication method according to any one of claims 21 to 28, further comprising

a step in which the base station transmits state update information indicating whether the mobile station can perform
25 data transmission/reception in the case where the synchronization of a wireless link has been established at the third timing, and

a step in which the mobile station is set to active state in which the data transmission/reception can be performed or suspend state in which the data transmission/reception cannot be
30 performed based on transmission/reception state update information.

30. The wireless communication method according to any of

claims 21 to 29, further comprising

a step in which the base station transmits state update information indicating active state to the mobile station in the case where the synchronization of a wireless link has not been established at the third timing.

31. The wireless communication method according to any one of claims 25 to 31, further comprising

a step in which the mobile station performs notification of synchronization establishment completion information in response to completion of the synchronization establishment of the downlink individual channel in the case where the synchronization of a wireless link has not been established at the third timing and reception of the downlink individual channel is continued.

32. The wireless communication method according to any one of claims 21 to 31, further comprising

a step in which the base station notifies the mobile station of synchronization unestablishment information in the case where the synchronization of a wireless link has not been established at the third timing.